627.41 (73)

SECTION IV.—RIVERS AND FLOODS.

RIVERS AND FLOODS DURING SEPTEMBER, 1917.

By ALFRED J. HENRY, Professor in Charge.

[Dated: Weather Bureau, River and Flood Division, Oct. 31, 1917.]

Fairly heavy rains fell on the upper watersheds of Carolina rivers on August 31 and again on September 1 and 2, causing moderate flood in the tributaries of the Santee of South Carolina on the 2d, 3d, and 4th and a freshet stage in the Cape Fear River of North Carolina at Elizabethton on the 4th. Heavy rains over the Coastal Plain of North Carolina on the 14th and 15th caused overflows in the Tar River only. Heavy rains in Georgia and adjacent States at the close of the month caused a marked rise in the rivers of Georgia and a little damage to corn in the lowlands. Flood stage was reached in the Oconee at Milledgeville, Ga., only.

A considerable flood wave passed down the Rio Grande during the closing days of the month. The following account of it has been furnished by Meteorologist B. Bunnemeyer, in charge of the Texas section of the River and Flood Service:

Large portions of the Rio Grande Valley were flooded successively from Eagle Pass, Tex., to Brownsville, Tex., from September 26 to October 7, when the crest of the flood reached Brownsville. When the flood-warning service of the Rio Grande was reorganized some years ago, residents in the lower valley held that rises from Eagle Pass and Laredo were not dangerous, as they flattened rapidly in their downward course, and that most of the flood waters came from the San Juan, which empties into the Rio Grande from the Mexican side just above Rio Grande City. Be this as it may, in this case most of the water came from Del Rio and Eagle Pass, although no reports of heavy rains reached this office.

Warnings of this flood were sent by the observer at Del Rio to the river observer at Eagle Pass on September 24 and 26, who reported for the two days a total rise of 12 feet near Del Rio. Reports of rises were subsequently received from the river observers at Eagle Pass, Laredo, and Rio Grande and distributed immediately upon receipt. On September 28 all parties were advised that flood conditions were expected in the lower valley, and on September 29 they were requested to warn all interests affected.

The crest of the flood passed Eagle Pass on September 28, with a stage of 23.4 feet; Laredo on September 29, with a stage of 21 feet: and Rio Grande City on October 1, with a stage of 21.7 feet. The Cameron County Water Improvement District No. 2 at San Benito reported that for two days—October 4 and 5—the water at their headgates stood at an elevation of 51.25 feet, based on their datum, the zero of which is about 7.85 feet above sea level, and the observer at Brownsville reported that the crest of the flood reached his city about noon October 7.

The damage from the high water in the Brownsville section is estimated at $100,000, affecting mostly the Gulf coast lines, lumber yards, ice plant, cottonseed oil mill, flour mill, wholesale grocers, many retail dealers, and probably 100 families. About 45 blocks of the city were under water. There was very little damage elsewhere, as nearly all crops had been gathered and stock was driven from the lowlands. Reports from several agricultural sections in the valley indicate that the soaking of the land from the overflow will be decidedly beneficial for the next crop. At Eagle Pass stock valued at $12,000 was saved by the warnings. At San Benito construction work was carried on in several places, and the warnings gave the Water Improvement District No. 2 time to prepare, otherwise they would have suffered serious damage at their headgates.

According to press dispatches the damming of the Arroyo Colorado, which formerly carried much of the flood waters into the Gulf of Mexico, diverted the water to the Brownsville section, although the flooding of the city was directly due to the breaking of a levee on a lake between the city and the river. A large force of United States troops aided in preventing the spread of the overflow.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for chartering are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

TABLE 1.—*Flood stages in Atlantic coast drainage during September, 1917.*

River.	Station.	Flood stage.	Above flood stages—dates.		Crest.	
			From—	To—	Stage.	Date.
		Feet.			*Feet.*	
Fishing Creek	Enfield, N. C.	14	.....	.....	13.0	17
Tar	Greenville, N. C.	13	17	22	15.5	19
Do	Tarboro, N. C.	18	18	18	18.0	18
Cape Fear	Elizabethtown, N. C.	22	.....	.....	20.2	4
Peedee	Cheraw, S. C.	27	2	3	30.1	3
Santee	Ferguson, S. C.	12	9	13	12.7	12
Do	Rimini, S. C.	12	4	10	13.5	8
Wateree	Camden, S. C.	24	2	3	27.2	3
Catawba	Catawba, S. C.	11	1	2	14.2	2
Broad	Blairs, S. C.	15	.....	.....	13.6	3
Saluda	Chappells, S. C.	14	.....	.....	13.2	4
Do	Pelzer, S. C.	7	2	3	8.8	2
Oconee	Milledgeville, Ga.	22	30	(*)	24.4	30

* Continued into October.

TABLE 2.—*Flood stages in western Gulf drainage during September, 1917.*

River.	Station.	Flood stage.	Above flood stages—dates.		Crest.	
			From—	To—	Stage.	Date.
		Feet.			*Feet.*	
Nueces	Cotulla, Tex.	15	.....	.....	14.7	7
Rio Grande	Eagle Pass, Tex.	16	27	29	23.4	28
Do	Rio Grande City, Tex.	15	28	(*)	20.8	30

* Continued into October.

MEAN LAKE LEVELS DURING SEPTEMBER, 1917.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Oct. 6, 1917.]

The following data are reported in the "Notice to Mariners" of the above date:

Date.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during September, 1917:	*Feet.*	*Feet.*	*Feet.*	*Feet.*
Above mean sealevel at New York	602.73	581.68	573.28	246.93
Above or below—				
Mean stage of August, 1917	+0.04	−0.22	−0.29	−0.42
Mean stage of September, 1916	−1.08	+0.89	+0.99	+0.24
Average stage for September, last 10 years	+0.03	+1.06	+0.94	+0.75
Highest recorded September stage	−1.35	−1.75	−0.66	−0.66
Lowest recorded September stage	+1.24	+2.02	+2.00	+2.93
Average relation of the September level to—				
August level	+0.1	−0.2	−0.3	−0.4
October level	±0.0	+0.2	+0.3	+0.4

* Lake St. Clair's level: In September, 576.25 feet.